Gartner

Prepared for

Los Angeles County
Department of Public Works

Information Technology Strategic Plan–
Executive Summary

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Engagement: #220021110

Gartner Consulting

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1 Project Background and Objectives

The purpose of the Information Technology Strategic Plan is to provide a strategic direction for information systems and guide the use of information technology to support the achievement of the Department's business goals. The Information Technology (IT) Strategic Plan will provide a roadmap for implementation of future information technology. It also will serve as management's principal working document for the next three years as DPW continues to upgrade and enhance its information systems.

The objectives of this effort included:

- Articulate the Department's business vision, mission and key goals to provide a framework for IT strategic planning
- Conduct high-level assessment of DPW's current information technology environment :
  - Organization
  - Applications
  - Data
  - Infrastructure
  - Projects.
- Develop recommendations for improved technology that will support the achievement of the Department's business goals
- Prepare a three-year IT Strategic Plan that reflects a vision for future use of technology and provides a framework for operational and tactical decisions.

2 Project Approach

The figure below depicts the approach used in developing the IT Strategic Plan.

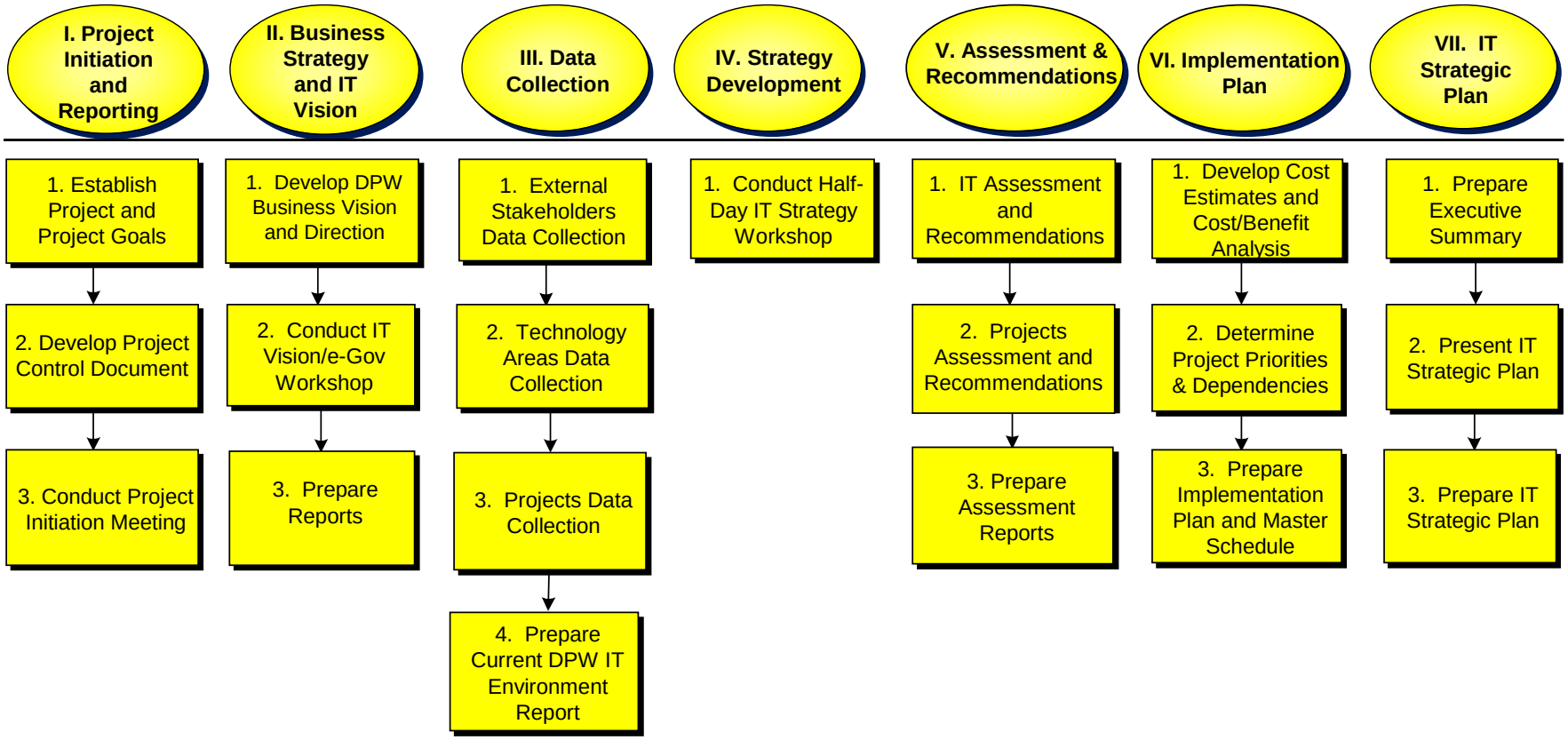


Figure 1. IT Strategic Plan Project Approach

Development of the IT Strategic Plan was a Department-wide effort. Every Division/Group provided input into the plan through extensive interviews and participation in surveys. The Cross-Divisional Project Team and the IT Policy and Advisory Committee (ITPAC) were instrumental in the development of the IT Strategic Plan. They participated by:

- Providing input to the plan through interviews, requested data, etc.
- Bringing both a business and technology perspective to the planning effort
- Reviewing draft deliverables and providing feedback
- Acting as champions for the strategic planning effort

In addition, ITPAC reviewed and approved the final IT Strategic Plan.

3 Business Context for IT Strategic Planning

The Department's Business Strategic Planning effort provided the business context for developing the IT Strategic Plan. The Business Planning effort validated the Department's mission and identified three critical issues:

- Quality of the County's infrastructure
- Large unfunded mandates in water quality and waste reduction
- Enhancement of DPW's workforce configuration and career opportunities.

These issues are addressed in the Department's Business Strategic Plan through eleven (11) action plans. The IT Strategic Plan is intended to guide the Department's effective use of technology to help DPW address the critical issues and assist in the implementation of the action plans, especially, Action Plan 8: Re-engineering and Continuous Process Improvement. The IT Plan is also intended to support the Department's continued provision of high quality public works services.

4 IT Strategic Plan Content

The IT Strategic Plan is composed of several reports. Each report includes a key aspect of the current or future information technology environment. The reports contained in the IT Strategic Plan are listed and described below:

- **Project Control and Work Plan:** Describes steps in the IT Strategic Planning process.
- **IT Overview Report:** Describes the current IT Division and it's Mission and functions.
- **Business Directions Report:** Describes DPW's business directions that were available at the beginning of the IT Strategic Planning effort. These directions were developed prior to the completion of the Departments Business Strategic Plan. Since the completion of the Business Strategic Plan, that plan has been used to provided the business direction for the IT Strategic Plan.
- **Current IT Environment Report:** Describes DPW's current IT environment, including management structure, applications, infrastructure, sourcing, etc.
- **Target Alignment Report:** Describes how the IT Strategic Plan will support the Department's business directions. This report was based on the initial business directions available before completion of the Department's Business Strategic Plan.
- **Target Applications Report:** Provides recommendations to replace, enhance or maintain each of DPW's 26 most critical application.
- **Target Environment Report:** Provides recommendations for IT infrastructure, data and application development methodology.
- **Management Structure Report::** Provides recommendations for IT governance, IT organization structure, IT sourcing and IT skills.
- **Cost & Benefit Report:** Provides cost estimates for each implementation project along with the expected benefits of each project.
- **Implementation Plan Report:** Provides a master schedule for implementing the recommended projects.

- **Executive Summary:** Provides a summary of the recommendations, implementation plan, estimated costs and anticipated benefits.

5 Summary of Recommendations

5.1 Target Applications

The 26 most critical business applications were evaluated for their effectiveness in meeting the Department's business needs. All divisions and groups provided input on the effectiveness of these applications and the priority to change/improve them. The applications were organized by size:

Application Size	Number of DPW Users	Number of Divisions Using
Large	200-904	Many or All
Medium	50-199	Some or One
Small	1-49	Part of One

Based on the assessment, each application was allocated to one of the following categories:

- **Replace:** Acquire new software or completely redesign the system to get improved technology or functionality
- **Enhance:** Add new business functionality, improve system stability or interface with other systems
- **Maintain:** Retain existing system, potentially improving documentation or staff training.

A summary of recommendations is provided below:

REPLACE

- Large Applications
  - Development and Permits Tracking System (replace with e-DAPTS)
  - Maintenance Management System (MMS) (or Enhance).

- Medium Applications
  - Damage Assessment System (DAS) (replace with e-DAPTS).
- Small Applications
  - Solid Waste Information Management System (SWIMS) (or Enhance)
  - Building and Safety Certification System (BSCS) (replace with e-DAPTS)
  - Hazardous Materials System (HMS) (replace with e-DAPTS)
  - Property Parcel Management (PPM)
  - Automated Reservoir Reporting System (ARRS)
  - Simple Permits Application and Tracking System (SPATS) (replace with e-DAPTS)
  - Waterworks Billing System (WBS).

ENHANCE

- Large Applications
  - Maintenance Management System (MMS) (or Replace)
  - Project Information Website (PIW)
  - Financial Accounting System (FAS)
  - Document Management System (DMS).
- Medium Applications
  - Materials Lab Application (or Replace)
  - Engineer's Estimate System (EES)
  - FleetAnywhere (FA)

- Project Information System (PIS).

- Small Applications
  - Solid Waste Information Management System (SWIMS) (or Replace)
  - ALERT (Novastar/Storm Watch).

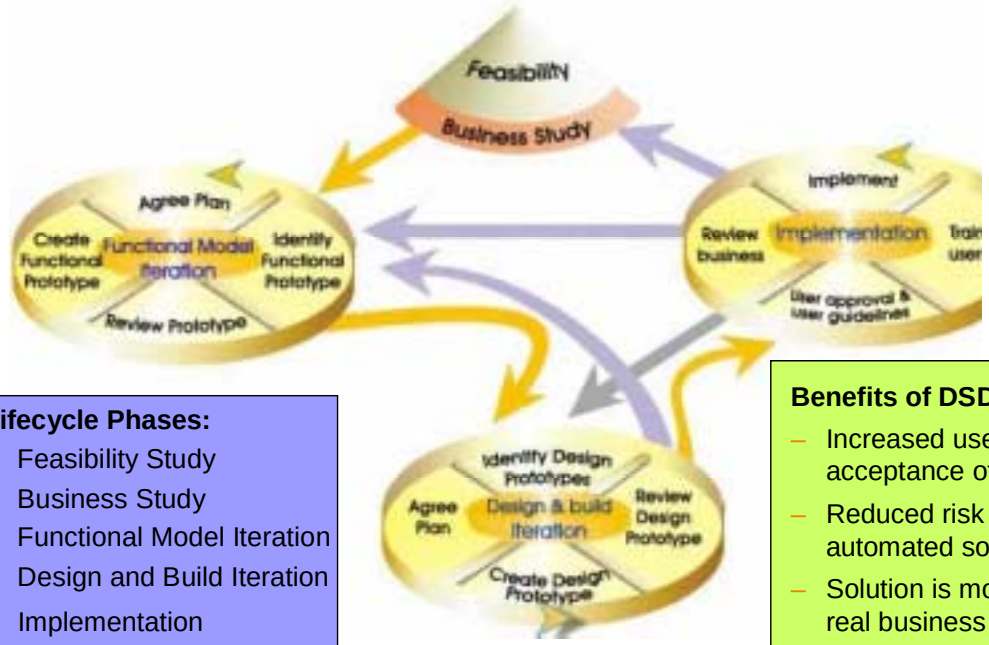
MAINTAIN

- Large Applications
  - Primavera Project Planner (P3).
- Medium Applications
  - Materials Lab Application
  - A-Train
  - Position Status Report (PSR).
- Small Applications
  - Watershed Modeling System (WMS)
  - Supervisory Control and Data Acquisition (SCADA)
  - Survey Benchmark System (SBS)
  - Household Hazardous Waste Roundup System (HHWRS)
  - Safety Management System.

5.2 Target Environment

5.2.1 Application Development Methodology

- DPW should adopt the Dynamic Systems Development Method (DSDM) for application development projects undertaken by ITD and division staff.



DSDM Lifecycle Phases:

Phase 1. Feasibility Study
Phase 2. Business Study
Phase 3. Functional Model Iteration
Phase 4. Design and Build Iteration
Phase 5. Implementation

Benefits of DSDM:

- Increased user ownership and acceptance of the solution
- Reduced risk of building the wrong automated solution
- Solution is more likely to meet users' real business requirements
- Users will be trained prior to deployment
- Implementation is more likely to go smoothly

5.2.2 Data

- The critical data issue for e-Government is the ability to identify a customer across multiple government programs in order to give that customer access to government services in an easy-to-use, customer-centric manner
- Summary of data recommendations
  - Standardize, reconcile and cross-reference key identifiers so that a single identity for a customer/location/asset can be maintained across all DPW services. Key identifiers include:
    - Customer ID
    - Employee number
    - Site address
    - Intersection
    - Street segment
    - GIS features.
  - Normalize, standardize and integrate data across DPW databases
    - This will require standardizing on modern Structure Query Language (SQL) relational DBMS structures and using the fewest possible products.

5.2.3 Infrastructure

- Infrastructure strengths
  - Only three operating systems are in use within DPW (OS/390, HP UNIX, and Windows in multiple versions). OS/390 will be retired
  - MS-Exchange 2000 used as e-mail server and MS-Active Directory used for directory services on a department-wide basis
  - The entire DPW network is centrally controlled and managed by a single group.

- Summary of infrastructure recommendations
  - Upgrade Windows 2000
  - Evaluate integration brokers
  - Deploy Macromedia DreamWeaver
  - Evaluate content management tools
  - Evaluate business intelligence tools
  - Upgrade ArcGIS
  - Upgrade to Oracle 9i
  - Deploy Quest database utilities
  - Deploy MS ISA firewall
  - Deploy full verity search capability
  - Upgrade radio infrastructure
  - Deploy group video conferencing
  - Deploy software configuration and change management
  - Deploy application/network management capability
  - Deploy application monitoring and fault management
  - Deploy enterprise monitoring console
  - Deploy e-mail content filtering
  - Deploy DSDM application development methodology.

5.3 Management Structure

5.3.1 Office of the CIO Organization Structure

The figure below depicts the recommended organization structure for the Office of the CIO.

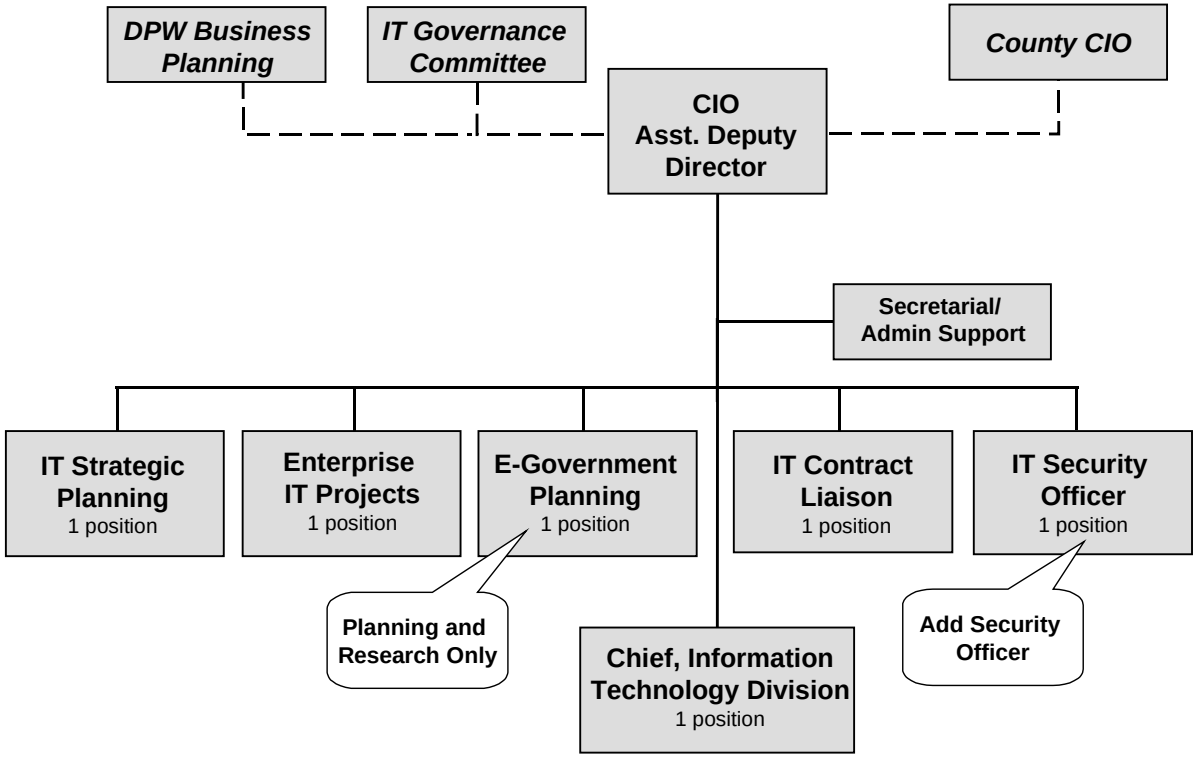


Figure 2. Recommended Office of the CIO Organization Structure

Source: Gartner, 2002

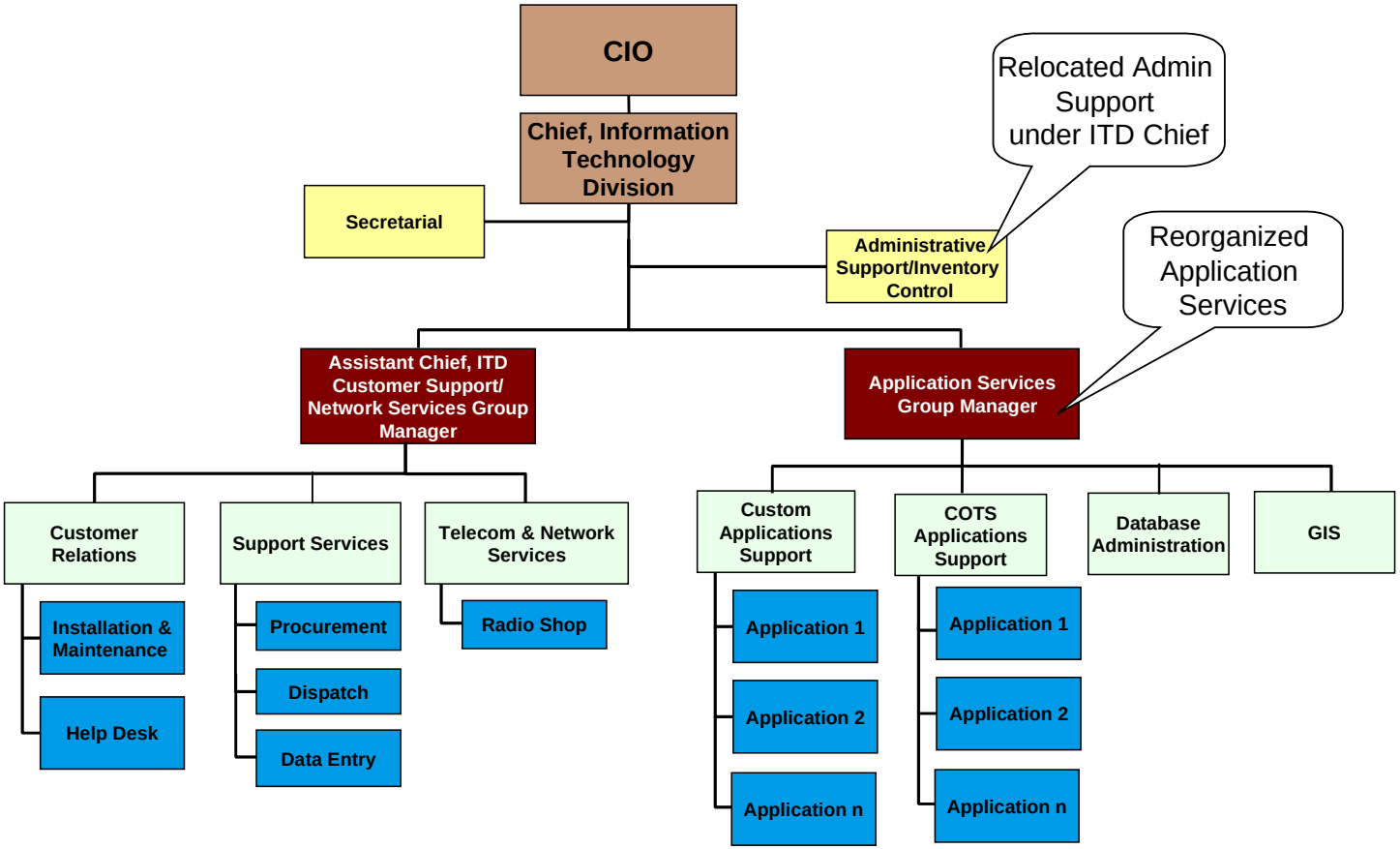
5.3.1.1 Role of the CIO

The Department's CIO should act as an IT advisor, ambassador, advocate and arbiter. The CIO should be business-oriented with knowledge of IT, should not be perceived as head of IT service delivery, and should be perceived as head of IT decision-making within the Department. The CIO's responsibility should include oversight on any electronic data capture and /or manipulation of information, and the CIO should be the leader of the Department's e-government effort. To be effective in the role of the CIO, the CIO should continue to report directly to the Chief Executive Officer (CEO), in this case, the Director of the Department.

5.3.2 Information Technology Division Organization Structure

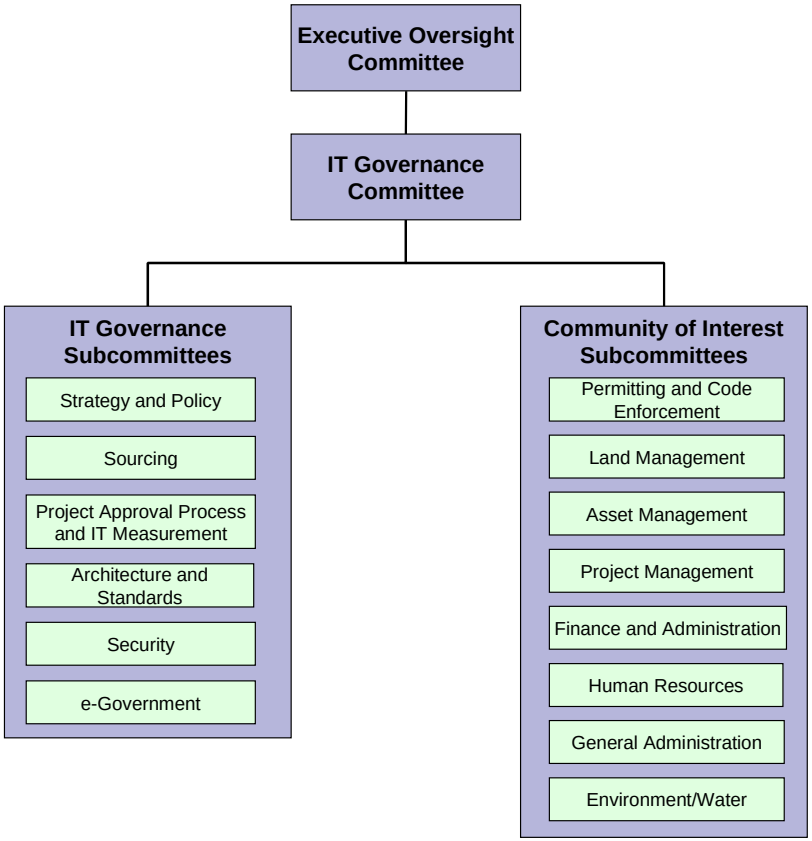
The figure below depicts the recommended organization structure for ITD.

Figure 3. Recommended ITD Organization Structure



5.3.3 IT Governance

IT Governance is the process and structure by which decisions are made regarding information technology. Effective IT Governance is the single most important IT issue since all other issues derive from the quality of IT governance. IT decision making should be shared by CIO and DPW division stakeholders. ITD should be service delivery unit, not IT standards and policy decision-maker. The figure below depicts the recommended IT governance structure. Similar IT governance has been implemented in Clark Co, NV; Gwinnett Co, GA; and the State of Kansas.



5.3.4 Sourcing

The Department should continue outsourcing the following services:

- Software Maintenance:
  - Microstation, Arc/Info, FileNet, Oracle, GPS, EaglePoint
  - ALERT, FAS, Maximo, Fuel System, Primavera, Pavement Management.
- Hardware Maintenance
- System Evaluation – water billing system, e-DAPTS
- Software Training – computer-based training (CBT) software training classes
- Personnel – interns
- Website Development.

The Department should consider outsourcing the following services:

- Non-PC hardware maintenance - cell phones, radios, pagers, fax, telephones, microwave systems, satellite links, telephone switch, voice mail.
- Contract application development services - for developing/maintaining some in-house applications, while moving toward COTS applications as much as possible.
- Data entry services.

The Department should retain in-house services as they are, except:

- Consider moving general dispatch to a different division (perhaps admin. services).

5.3.5 IT Staff Skills

Based on the Department's business needs and IT directions, the following skills should be the priority for skill building/acquisition efforts:

Skill Category	Skill Building/ Acquisition Priority
Architectural Application Support	1
Web Development and Environments	1
Database Management System (DBMS) Development and Management	1
Operating Systems Support – HP-UX	2
Operating Systems Support – Windows 2000	3
Application Development - Object Oriented	3

- ITD has identified the following additional needed skill sets:
  - Network security
  - CAD/GIS application development.

5.3.6 e-Government

DPW should establish an e-Government subcommittee of the IT governance committee which should be:

- Charged with responsibility for e-Government
- Composed of division heads, CIO e-Government staff
- Chaired by the CIO
- Subject to the IT governance process (as are all other IT activities).

DPW should develop an e-Government strategic plan as a supplement to its IT strategic plan which should:

- Establish an e-Government vision for DPW

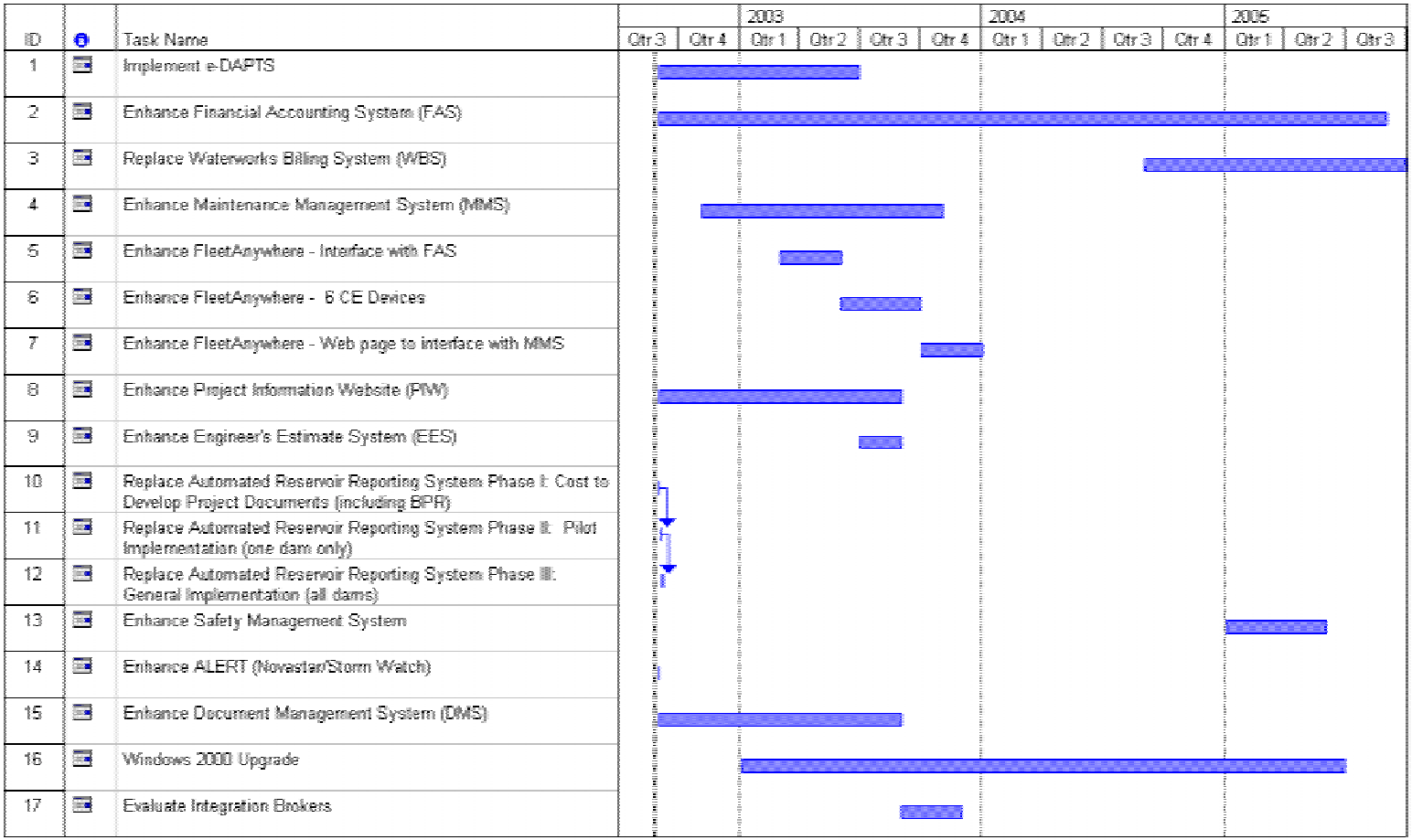
- Develop the goals, objectives, priorities, initiatives and projects designed to meet DPW vision in e-Government
- Establish the applications and specific business transactions to be rendered electronically
- Set the priority, schedule and cost for implementation of the plan.

DPW should develop an e-Government architecture (to realize its e-Government strategic plan) which should:

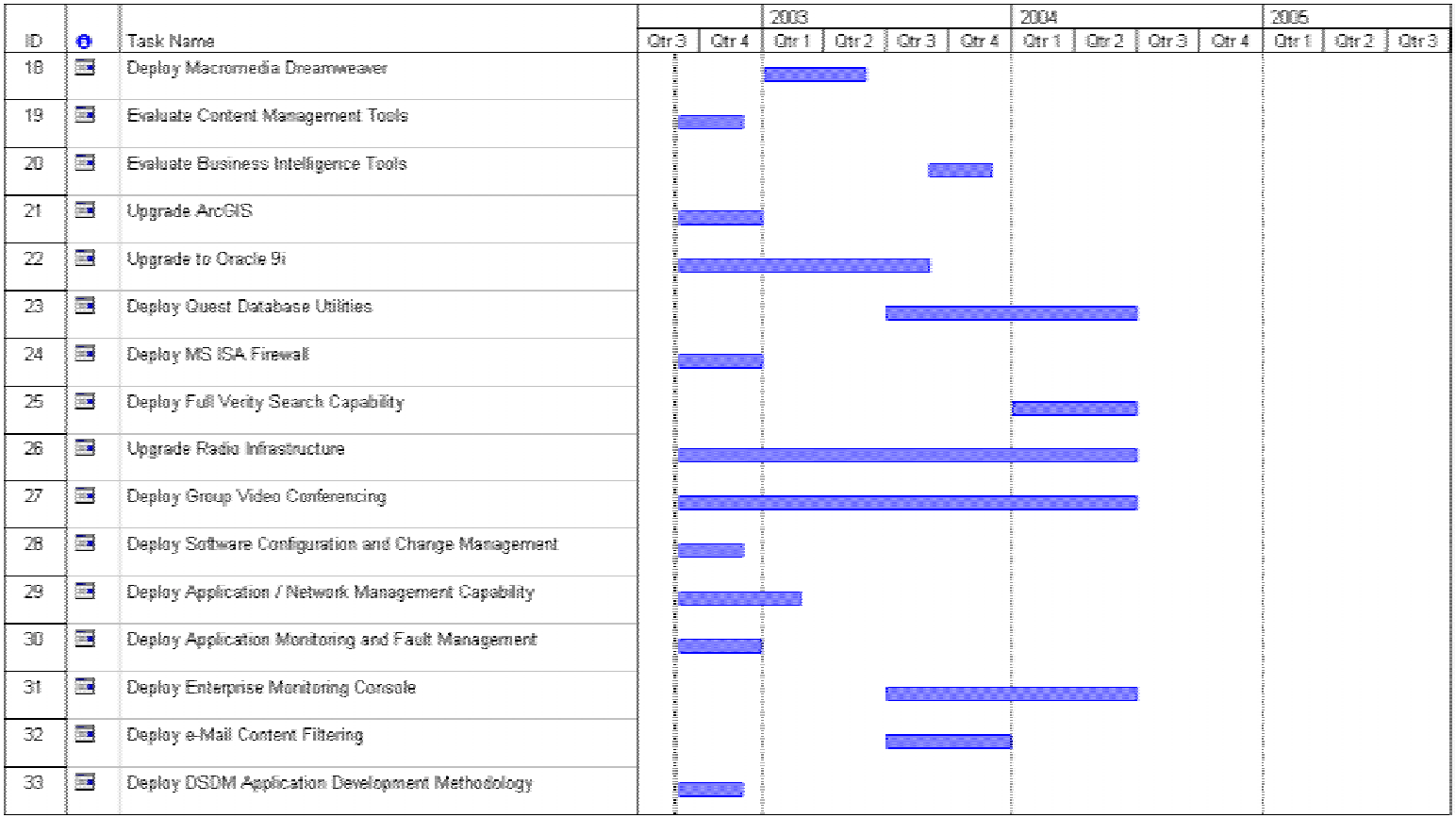
- Detail Communities of Interest (COIs) and maps all existing applications to their COI
- Detail the Customer Relationship Management (CRM) approach of DPW including its plan for protecting customers privacy
- Detail the departmental standards for repositories for customer identity, and customer history
- Detail shared services and set a priority, schedule and cost for their implementation
  - Payment process
  - Collection process
  - Directory services
  - Customer database
  - Tabular analysis (decision support)
  - Spatial navigation and analysis (GIS).
- Determine minimum infrastructure requirements
  - Security
  - Scalability.

6 Implementation Plan

The figures below depict the Implementation Plan. It schedules the implementation projects to be undertaken over the next three years.



ID	Task Name
1	Implement e-DAPTS
2	Enhance Financial Accounting System (FAS)
3	Replace Waterworks Billing System (WBS)
4	Enhance Maintenance Management System (MMS)
5	Enhance FleetAnywhere - Interface with FAS
6	Enhance FleetAnywhere - 6 CE Devices
7	Enhance FleetAnywhere - Web page to interface with MMS
8	Enhance Project Information Website (PIW)
9	Enhance Engineer's Estimate System (EES)
10	Replace Automated Reservoir Reporting System Phase I: Cost to Develop Project Documents (including BPR)
11	Replace Automated Reservoir Reporting System Phase II: Pilot Implementation (one dam only)
12	Replace Automated Reservoir Reporting System Phase III: General Implementation (all dams)
13	Enhance Safety Management System
14	Enhance ALERT (Novastar/Storm Watch)
15	Enhance Document Management System (DMS)
16	Windows 2000 Upgrade
17	Evaluate Integration Brokers



ID	Task Name
18	Deploy Macromedia Dreamweaver
19	Evaluate Content Management Tools
20	Evaluate Business Intelligence Tools
21	Upgrade ArcGIS
22	Upgrade to Oracle 9i
23	Deploy Quest Database Utilities
24	Deploy MS ISA Firewall
25	Deploy Full Verity Search Capability
26	Upgrade Radio Infrastructure
27	Deploy Group Video Conferencing
28	Deploy Software Configuration and Change Management
29	Deploy Application / Network Management Capability
30	Deploy Application Monitoring and Fault Management
31	Deploy Enterprise Monitoring Console
32	Deploy e-Mail Content Filtering
33	Deploy DSDM Application Development Methodology

7 Summary of Implementation Costs

The table below identifies the one-time and recurring costs related to the recommended implementation projects.

Implementation Cost Estimates							
Items	***One-Time Costs***				***Recurring Costs***		
Software	$2,506,400	—	$2,774,900		$317,340	—	$390,460
Hardware	$2,178,600	—	$2,377,060		$198,360	—	$263,696
Services	$4,673,500	—	$5,798,500		$267,800	—	$416,550
Project Oversight	$315,119	—	$449,069		$0	—	$0
Project Total	***$9,673,619***	—	***$11,399,529***		***$783,500***	—	***$1,070,706***

Notes/Assumptions:
These costs include current and planned projects over the next three years.
In-house labor costs for these projects are not included in these costs.
Costs of already acquired equipment are not included in these costs.

8 Benefits of the IT Strategic Plan Over the Next Three Years

- **Strong Infrastructure –** The Plan will create a strong technology infrastructure which will effectively support the delivery of public works services
- **Cost-effective Applications –** It will ensure that business applications are meeting user needs in the most cost-effective manner
- **Enterprise Perspective –** It will ensure that new applications are implemented after considering the enterprise-wide impacts and opportunities
- **Business Perspective –** It will enable DPW to manage IT effort through an enterprise-wide governance approach that is driven by a business perspective rather than only by a technology perspective
- **Align IT to Business Strategic Plan –** It will allow DPW to use technology appropriately and effectively in addressing its critical business issues and implementing the action plans
- **Prepare for e-Government –** It will lay the foundation for a coordinated, department-wide approach to e-government that considers business needs, the customer perspective and technology requirements.

9 Immediate Next Steps

9.1 Establish New IT Governance

9.1.1 Assemble IT Executive Oversight Committee

- Approve IT Strategic Plan Recommendations for IT Governance structure
- Establish members of each Governance Committee

9.1.2 Draft Governance Charter

- Each subcommittee can draft their own charter, based on IT Strategic Plan Recommendations
  - ✓ Governance Structure

- ♦ Committees & Subcommittees
- ♦ Roles and Responsibilities
- ♦ Determine Communities of Interest

✓ Governance Processes

- ♦ Policies Submission, Approval & Review Processes
- ♦ Architecture & Standards Submission, Approval and Review Processes
- ♦ Sourcing Decision Process (who does what IT functions)
- ♦ Project Submission, Approval & Review Processes
- ♦ Communities of Interest Processes

9.2 Execute Infrastructure Projects

9.2.1 See Project Implementation Schedule

9.3 Execute Application Projects

9.3.1 See Project Implementation Schedule